

Serial No. 09/921,170
Reply to Office Action of October 20, 2003

REMARKS

Responsive to the Office Action mailed October 20, 2003, Applicant has studied the Examiner's comments and the cited art. Prior to this Amendment, claims 1-9, 11-19, 21-24, 26-27, 29-31, 33-39, and 41-44 were pending; after entry of this Amendment, claims 1-5, 7-9, 11-19, 21-24, 26-27, 29-31, 33-39, and 41-47 remain pending. In view of the following remarks, Applicants respectfully submit that the application is in condition for allowance.

Amendments

Applicant has amended the specification to conform to the drawings, to take note of the substantially cylindrical nature of the heel and lip sections of the piston seal. No new matter has been added.

Applicant has amended claims 1, 11, 21-24, 26, 29, 31, and 35-36 to clarify the shape and relationships of the heel and lip sections of the piston seal. Applicant has further added claims 45-47 to provide additional scope of claim coverage to which Applicant is entitled.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-3, 5-9, 11-13, 15-19, 21-23, 27, 29, 30, 33-34, and 36-39 are rejected under 35 U.S.C. § 102(b) as being anticipated by Pittman, U.S. Patent No. 3,319,537. Applicant has cancelled claims 6-7. Applicant respectfully traverses the rejections for the remaining claims.

The Office Action asserts that the relatively rigid slip ring 43 of Pittman is a heel section as recited by Applicant's claims 1, 11, 21, 29, and 36. However, Pittman fails to recite a heel section where the flange is embedded into a first end of the heel section, as in Applicant's claimed subject matter. Instead, the circular washer 33 of Pittman engages an interior surface of the slip ring 43. Further, Pittman fails to recite a substantially cylindrical lip section where a second end of the heel section abuts a first end of the lip section. Furthermore, Pittman fails to recite a lip section that does not engage with the circular washer 33. Applicant notes that the Interview Summary prepared by the Examiner for the telephonic interview of December 1, 2003, suggests a limitation that states that the lip section does not engage the flange of the piston hub as a way of overcoming the Pittman reference. For these reasons, Applicants respectfully request withdrawal of the rejections.

With respect to claim 35, Pittman fails to recite a substantially cylindrical heel section where a first end of the heel section covers the first surface of the flange, and a second end of the heel section abuts a first end of a lip section. Even if the slip ring 43 is considered cylindrical, which Applicant does not admit, no end of the slip ring 43 is in contact with, much less covers, a surface of the circular washer 33. Further, Pittman fails to recite lip sections where a first end of the lip sections abuts the second end of the heel sections or where the lip sections do not engage the flange. For these reasons, Applicant respectfully requests withdrawal of the rejection.

Claims 2-5, 8-9, 12-13, 15-19, 22-23, 27, 30, 33-34, and 37-39 depend from allowable claims 1, 11, 21, 29, and 36 and are therefore also allowable. For at least this reason, Applicant respectfully requests withdrawal of the rejections.

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Further, with respect to claims 4, 14, and 24, Pittman fails to recite forming an annular lip on a posterior surface of the annular flange, overlapping the annular lip with the heel section. The Office Action fails to identify any such structure in Pittman. For these additional reasons, Applicant respectfully requests withdrawal of the rejections.

With respect to claims 5, 15, and 26, Pittman fails to recite an annular projection formed in an outer surface of the lip section where the maximum outer diameter of the annular projection is in an interior portion of the annular projection, as in Applicant's claimed subject matter. As best seen in Fig. 4, the maximum diameter of the lips 42 and 42 is at the outermost edge of the lips 41 and 42. For these additional reasons, Applicant respectfully requests withdrawal of the rejections.

Further, claim 31 recites forming an annular lip in the posterior surface of the piston hub. As shown above, Pittman fails to recite forming such an annular lip in the posterior surface of the piston hub, and the Office Action fails to identify any such structure. For this additional reason, Applicant respectfully requests withdrawal of the rejection.

In addition, claim 33 recites forming a concentric annular projection in the lip portion having a maximum outer diameter in an interior portion of the concentric annular projection. As shown above, the lips 41 and 42 have a maximum outer diameter on an exterior edge of the lips 41 and 42. For this additional reason, Applicant respectfully requests withdrawal of the rejections.

Claims 1-5, 11-17, 21-24, 26, 29-31, 33, and 35-37 are rejected under 35 U.S.C. § 102(b) as being anticipated by Dailey, U.S. Patent No. 3,136,228. Applicant has cancelled claims 6-7. Applicant respectfully traverses the remaining rejections.

As with Pittman, Dailey fails to recite a piston seal where a flange is embedded in or is covered by a first end of a substantially cylindrical heel section, while a second end of the heel section abuts a first end of a substantially cylindrical lip section, which does not engage the flange. Even if, as the Office Action asserts, the low frictional material 74 is a heel section and the disc 62 is a flange, which Applicants do not admit, the disc 62 is not embedded into an end of the low frictional material 74, but merely abuts it, as shown best in Fig. 3 of Dailey. Further, because the outer portion 16 also abuts the same end of the low frictional material 74, thus does not abut a second end of the low frictional material 74 without engaging with the disc 62, as in Applicant's claimed subject matter. Applicant notes that the Interview Summary prepared by the Examiner for the telephonic interview of December 1, 2003, suggests a limitation that states that the lip section does not engage the flange of the piston hub as a way of overcoming the Dailey reference. For these reasons, Applicant respectfully requests withdrawal of the rejections.

Claims 2-5, 12-17, 22-24, 26, 29-31, 33, and 35-37 depend from allowable claims 1, 11, and 21, and are therefore also allowable. For at least this reason, Applicant respectfully requests withdrawal of the rejections.

Claims 30-31 and 33-34 depend from allowable claim 29 and are therefore also allowable. For at least this reason, Applicant respectfully requests withdrawal of the rejections.

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Claim 37 depends from allowable claim 36 and is therefore also allowable. For at least this reason, Applicant respectfully requests withdrawal of the rejection.

Claim Rejections Under 35 U.S.C. § 103

Claims 41-43 are rejected under 35 U.S.C. § 103 as being unpatentable over Pittman, U.S. Patent No. 3,319,537, in view of Handbook of Plastics, Elastomers and Composites (hereafter, "the Handbook").

Claims 41-43 depend from allowable claims 1, 11, and 21 and are therefore also allowable. For at least these reasons, Applicant respectfully requests withdrawal of the rejections.

Claims 41-44 are rejected under 35 U.S.C. § 103 as being unpatentable over Dailey, U.S. Patent No. 3,136,228, in view of Handbook of Plastics, Elastomers and Composites (hereafter, "the Handbook").

Claims 41-44 depend from allowable claims 1, 11, 21, and 35, and are therefore also allowable. For at least this reason, Applicant respectfully requests withdrawal of the rejections.

CONCLUSION

Applicant respectfully submits that all issues and rejections have been adequately addressed, that all claims are allowable, and that the case should be advanced to issuance.

If the Examiner has any questions or wishes to discuss the claims, Applicant encourages the Examiner to call the undersigned at the telephone number indicated below.

Respectfully submitted



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